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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,320	08/20/2001	A. John Michaelis	27600/M219A	2062
4743	7590	07/28/2004	EXAMINER	
MARSHALL, GERSTEIN & BORUN LLP 6300 SEARS TOWER 233 S. WACKER DRIVE CHICAGO, IL 60606			HINZE, LEO T	
			ART UNIT	PAPER NUMBER
			2854	

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/933,320

Applicant(s)

MICHAELIS, A. JOHN

Examiner

Leo T. Hinze

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-7, 9-16, 19-22, and 24-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheridan, US 4,126,854 in view of Jacobsen et al., US 6,445,489.

Sheridan teaches a twisting ball panel display, including:

- Claim 1: A method of imaging electronic paper, the method comprising: providing a focused light source (col. 7, lines 20-21) structured to emit a light beam; positioning an electrode grid (10', Fig. 7) in front of the focused light source; positioning an electrostatic display cell layer (4, Fig. 7) between the back plane electrode grid and the focused light source; positioning a photoconductive layer (60, Fig. 7) between the electrostatic display cell layer and the focused light source; positioning a front plane electrode grid (12', Fig. 7) between the photoconductive layer and the focused light source, the front plane electrode grid being transparent to the light beam; generating an electrical potential between the front plane electrode grid and the back plane electrode

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grid; and emitting the light beam from the focused light source while the electrical potential between the front plane electrode grid and the back plane electrode grid is being generated (col. 7, lines 16-25);

- Claim 16: a method of imaging electronic paper, the method comprising: providing a focused light source (col. 7, lines 20-21) structured to emit a light beam; positioning a back plane electrode grid (10', Fig. 7) in front of the focused light source; positioning an electrostatic display cell layer (4, Fig. 7) between the back plane electrode grid and the focused light source; positioning a photoconductive layer (60, Fig. 7) between the electrostatic display cell layer and the focused light source; positioning a front plane electrode grid (12', Fig. 7) between the photoconductive layer and the focused light source, the front plane electrode grid being transparent to the light beam; generating an electrical potential between the front plane electrode grid and the back plane electrode grid; and emitting the light beam from the focused light source while the electrical potential between the front plane electrode grid and the back plane electrode grid is being generated (col. 7, lines 16-25);

- Claims 13 and 28: wherein positioning an electrostatic display cell layer comprises positioning a layer of translucent enclosures, each translucent enclosure containing a fluid and an electrically charged material (col. 3, lines 35-46);

- Claims 14 and 29: wherein positioning an electrostatic display cell layer comprises positioning a layer of spheres, each sphere being captured in a translucent cell such that each sphere is freely rotatable within the translucent cell, each sphere having one color

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on the front of the sphere and another color on the back of the sphere, each sphere being electrostatically charged with a charge of one polarity on the front of the sphere and a charge of another polarity on the back of the sphere (col. 3, lines 35-46);

- Claims 15 and 30: wherein positioning a front plane electrode layer comprises of positioning a front plane electrode layer which is transparent to visible light (“conductor 10’ of optically transparent material”, col. 3, lines 32-33);
- Claim 31: an apparatus for imaging electronic paper, the apparatus comprising: a switchable voltage source (19, Fig. 7); a front plane electrode grid (10’, Fig. 7) electrically connected to the switchable voltage source; a back plane electrode grid (12’, Fig. 7) electrically connected to the switchable voltage source; a focused light source (col. 7, lines 20-21) positioned to emit a light on each of a plurality of selected locations of the front plane electrode grid; and a controller (a controller is inherent in Sheridan, as the voltage and light source are coordinated to make a coherent image) operatively coupled to the switchable voltage source and the focused light source, the controller causing the switchable voltage source to produce an electrical potential between the front plane electrode grid and the back plane electrode grid, the controller causing the focused light source to emit the light beam from the focused light source while the electrical potential between the front plane electrode grid and the back plane electrode grid is being generated.

Sheridon does not teach:

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- Claim 1: positioning a photoconductive layer between the back plane electrode layer and the electrostatic display cell layer;
- Claims 1, 16, and 31: front and back plane electrode layers;
- Claims 4 and 19: wherein providing a focused light source comprises providing a laser device;
- Claims 5 and 20: wherein providing a focused light source comprises providing an invisible ray source;
- Claims 6 and 21: wherein providing a focused light source comprises providing a light source containing infrared light;
- Claims 7 and 22: wherein providing a focused light source comprises providing a light source containing ultraviolet light;
- Claims 9 and 24: wherein positioning a photoconductive layer comprises positioning a selenium layer.
- Claims 10 and 25: wherein positioning a photoconductive layer comprises positioning a layer of photoconductive silicon.
- Claims 11 and 26: wherein positioning a photoconductive layer comprises positioning a layer of cadmium sulfide.
- Claims 12 and 27: wherein positioning a photoconductive layer comprises positioning an organic photoconductor;
- Claim 32: wherein the focused light source comprises a laser device;
- Claim 33: wherein the focused light source comprises an infrared source;

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- Claim 34: wherein the focused light source comprises an ultraviolet source;
- Claim 35: wherein the focused light source comprises a light emitting diode array;
- Claim 36: wherein the focused light source comprises a light emitting polymer array;
- Claim 37: wherein the focused light source comprises a modulated light source;

Jacobsen et al. teach an electrophoretic display and system for addressing such a display, including:

- Claims 1, 16, and 31: front and back plane electrode layers (12, 16, Fig. 1); a photoconductive layer (12, Fig. 1); and electrophoretic layer; a light source (10, Fig. 1) to activate the photoconductive layer and create an image on the electrophoretic layer;
- Claims 4, 19, and 32: wherein providing a focused light source comprises providing a laser device (“lasers”, col. 6, lines 38-32);
- Claims 5 and 20: wherein providing a focused light source comprises providing an invisible ray source (“infrared”, col. 6, lines 28-40; col. 7, lines 14-16);
- Claims 6, 21, and 33: wherein providing a focused light source comprises providing a light source containing infrared light (“infrared”, col. 6, lines 28-40);
- Claims 7, 22, and 34: wherein providing a focused light source comprises providing a light source containing ultraviolet light (col. 7, lines 14-16);
- Claims 9 and 24: wherein positioning a photoconductive layer comprises positioning a selenium layer (col. 6, line 56 through col. 7, line 14);

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- Claims 10 and 25: wherein positioning a photoconductive layer comprises positioning a layer of photoconductive silicon (col. 6, line 56 through col. 7, line 14);
- Claims 11 and 26: wherein positioning a photoconductive layer comprises positioning a layer of cadmium sulfide (col. 6, line 56 through col. 7, line 14);
- Claims 12 and 27: wherein positioning a photoconductive layer comprises positioning an organic photoconductor (col. 6, line 56 through col. 7, line 14);
- Claim 35: wherein the focused light source comprises a light emitting diode array (col. 6, lines 28-40);
- Claim 36: wherein the focused light source comprises a light emitting polymer array (“infrared”, col. 6, lines 28-40);
- Claim 37: wherein the focused light source comprises a modulated light source (“infrared”, col. 6, lines 28-40);
- that the addressing system reduces cost compared to active matrix addressing schemes (col. 1, lines 15-63; col. 1, lines 55-60).

It has been held that rearrangement of parts is not sufficient by itself to patentably distinguish over the prior art. See MPEP §2144.04.

Regarding claims 1, 16, and 31, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sheridan by replacing the electrode grids with electrode layers, because Jacobsen et al. teach that electrode layers reduce cost compared to active matrix addressing schemes.

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Further regarding claim 1, it would have been obvious to one having ordinary skill in the art at the time the invention was made to additionally modify Sheridan to position the photoconductive layer between the front electrode and the electrostatic display cell layer, because one having ordinary skill in the art would recognize that such a change in the arrangement of parts would not change the functionality of the apparatus, and such a change would eliminate the requirement of a photoconductive layer that is transparent to visible light.

Regarding claims 4-12, 19-27, and 35-37, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Sheridan to use the specific elements as claimed, because Jacobsen et al. teach that these specific elements are all acceptable alternatives, and one having ordinary skill in the art would have known to use them for the generically taught elements of Sheridan.

Regarding claims 13-15 and 28-30, the combination of Sheridan and Jacobsen et al. teaches all that is claimed as discussed above.

3: Claims 2 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheridan in view of Jacobsen et al. as applied to claims 1 and 16 above, and further in view of Koshimizu et al., US 5,566,012.

The combination of Sheridan and Jacobsen et al. teaches all that is claimed as discussed in the rejection of claims 1 and 16 above, except:

- Claims 2 and 17: stepping the focused light source across the electronic paper.

Koshimizu teaches:

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- an optically addressed display device, including a laser (16, 22, Fig. 4) which scans (col. 8, lines 21-22) a light modulating element (1, Fig. 3) through a photoconductive element (2, Fig. 3), thereby forming a static image;
- that such a system is advantageous for creating a high-speed display which is clear and easy to read, thereby increasing the comfort of the user (col. 1, lines 49-51, lines 55-56).

Regarding claims 2 and 17, it would have been obvious to one having ordinary skill in the art to further modify Sheridan to scan the light source across the display device, because Koshimizu teaches that such a system is advantageous for creating a high-speed display which is clear and easy to read, thereby increasing the comfort of the user.

4. Claims 3 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheridan in view of Jacobsen et al. as applied to claims 1 and 16 above, and further in view of Wen et al., US 6,064,410.

The combination of Sheridan and Jacobsen et al. teaches all that is claimed as discussed in the rejection of claims 1 and 16 above, except:

- Claims 3 and 18: stepping advancing the electronic paper line by line.

Wen et al. teach printing on an electronically addressable medium, including moving the medium (50, Fig. 1) past the printhead (40, Fig. 1).

Regarding claims 3 and 18, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Sheridan to advance the electronic paper line by line, because Wen teaches that such a method is well known in the art, and one

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having ordinary skill in the art would recognize the advantages of such a method, including reduced cost, as a mechanism to move the electronic paper past a stationary printhead would not need to be as complicated or as expensive as one to move a printhead over a stationary piece of electronic paper.

5. Claims 8 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheridan in view of Jacobsen et al. as applied to claims 1 and 16 above, and further in view of Richley , US 5,900,858.

The combination of Sheridan and Jacobsen et al. teaches all that is claimed as discussed in the rejection of claims 1 and 16 above, except:

- Claims 8 and 23: wherein the step of positioning a back plane electrode layer comprises the step of positioning a white back plane electrode layer.

Richley teaches a twisting ball display (10, Fig. 1) which can have a white background sheet (col. 1, lines 35-37).

Regarding claims 8 and 23, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Sheridan to use a white background sheet, because Richley teaches that a white background sheet for a twisting ball display is well-known in the art, and one having ordinary skill would recognize the advantages of a white background sheet, such as high contrast and ease of reading when using black text.

6. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sheridan in view of Jacobsen et al. as applied to claim 31 above, and further in view of Yoshikawa et al. , US 4,831,408.

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The combination of Sheridan and Jacobsen et al. teaches all that is claimed as discussed in the rejection of claim 31 above, except wherein the modulated light source comprises a liquid crystal display.

Yoshikawa teaches using light from a laser, LED, LCD, or the like (col. 1, lines 25-30) for radiating energy on a photoconductor for printing images.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Sheridan to use a liquid crystal display, because Yoshikawa teaches that a liquid crystal display is an acceptable alternative to a laser as a source of radiant energy for activating a photoconducting device.

Response to Arguments

7. Applicant's arguments, see pages 8-9, filed 22 April, 2004, with respect to the rejection(s) of claim(s) 1-31 and the assertion that the electrode grids of Sheridan are different from the electrode layers claimed in claims 1, 16, and 31 of the instant application, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the art as applied above.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sheridan et al., US 6,137,467, Zehner et al., US 6,704,133, and Gates et al., US 6,704,133 each teach electronic paper having obvious similarities to the instant application.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leo T. Hinze whose telephone number is (571) 272-2167. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leo T. Hinze
Patent Examiner
AU 2854
13 July, 2004



ANDREW H. HIRSHFELD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800